

The Canadian Entomologist.

VOL. XLVII.

LONDON, AUGUST, 1915

No. 8

POPULAR AND ECONOMIC ENTOMOLOGY.

LICE AFFECTING THE DOMESTIC FOWL.

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The lice affecting the Domestic Fowl are members of the order Mallophaga and are commonly called Biting or Bird Lice to distinguish them from the sucking lice of mammals. The name "Biting Lice" is applied because of the fact that the mouth-parts of the insects are fitted for biting. The food consists of bits of feathers and epidermal scales—the lice never feeding on the blood of the host save possibly where it may have dried around wounds. The injury to chickens arises from the irritation produced by the constant feeding and probably also to a considerable extent by the sharp claws.

The loss occasioned to poultry keepers through the attacks of lice is of course difficult of estimation, but it is certain that it is much greater than is usually supposed to be the case. The injury to chicks is especially great, proper growth being prevented through the restless activity of the bird. It is even quite possible that much of the mortality of small chicks is due directly to the attacks of lice. More mature birds are also prevented from making proper growth and egg-laying is doubtless checked to a considerable extent by the weakened and restless condition of the birds. Where setting hens are used there are often losses in hatching as a result of the abnormal activity of the bird. In addition to these direct losses birds as a result of their weakened condition are more susceptible to the various diseases to which poultry are at all times a prey.

One point which makes the biting lice of great importance as ectoparasites is that the whole life of the insect is passed on the body of the host. The female attaches her eggs to the feathers of the bird and each young louse escapes by pushing off a cap-like structure at the free end of the egg. The rest of the life of the

louse is then spent on the body of this bird with the exception of course that migration may take place from bird to bird during contact on the perches or in nesting boxes.

Control Measures:

1.—*Lice Powders.*

There are many different lice powders on the market. Many are costly and some are not extremely effective. One of the most successful powders is that known as the "Lawry Lice Powder." This is not a proprietary powder and can be prepared cheaply by the poultry man. It will give extremely satisfactory results. This powder is made by adding to 3 parts of gasoline and 1 part of crude carbolic acid 90-95% enough plaster of paris to take up all the liquid. The plaster should be stirred in gradually so that a dry pinkish powder results.

This powder should be worked into the feathers of the bird especially on the more heavily infested parts of the body, that is in the region of the vent, wings and under side-of the body. It must be borne in mind that this powder will not kill the eggs or "nits" of the lice, and it will accordingly be necessary to give another dusting and in severe cases even a third at intervals of 5-7 days, to kill those young lice which have hatched since the last dusting.

There are several grades of crude carbolic acid on the market. That of 90-95% must be used in the powder to obtain satisfactory results. The Poultry Department of the Maine Agricultural Experiment Station state that they have used cresol in place of the crude carbolic acid with good results where the carbolic could not be obtained.

2.—*Blue Ointment.*

Prof. W. R. Graham, of the Ontario Agricultural College, states that he has used Blue Ointment with success where setting hens are heavily infested with lice. The ointment is worked into the feathers of the bird by hand, but it must be used *sparingly and very carefully.*

3.—*Dust Baths.*

Baths containing a mixture of road dust and tobacco dust may be kept in the poultry house or in the run. Birds will make

free use of these baths and the chances of infestation will be to a great extent reduced.

It will be found advisable also where brood hens are used to set them on tobacco stems which may be obtained cheaply from any cigar factory. The possibilities of infestation of the chicks will thus be greatly reduced.

4.—*Carbolized Sweet Oil.*

Dusting young chicks will be found to be a difficult practice. Where head lice are very bad on young chicks it may be found necessary, however, to treat them. In this case a little carbolized Sweet Oil may be rubbed into the infested regions. The oil, however, must be used *only in extreme cases and then very sparingly*, as its use in any quantity may endanger the life of the chick.

A much surer method is to protect young birds from infestation by thoroughly treating all old birds with which they may come in contact.

5.—*Disinfection of Houses.*

If incubator and brooder-raised chicks are kept free from contact with old birds during their development, and are then placed in houses which have been thoroughly cleansed and disinfected, the danger of infestation is reduced to a minimum. Under these conditions any old birds which must be introduced into the house should, of course, be given two or three thorough dustings before they are allowed to run with the young birds.

Before the introduction of the young pullets the whole house, nests, perches, walls and floor should be thoroughly scraped and scrubbed and then well painted or sprayed with a mixture of 3 parts of Kerosene and 1 part of Crude Carbolic Acid 95%. This ensures absolutely lice-free surroundings for the young birds and also checks to a great extent, if it does not entirely eradicate, an infestation of red mites if such be present.

Following are the species of lice which are known to infest the Domestic Fowl in Canada with brief descriptions to aid in their identification.

The Common Hen Louse (*Menopon pallidum* N.).

This louse is about .04 to .06 inches in length. The body is compact, the head is long and the legs short. The abdomen

tapers strongly and regularly to the posterior end and is beset with numerous bristles. The whole body is a light straw colour.

This is in Canada as elsewhere the most common species affecting the Domestic Fowl. It can be readily recognized by its light yellow colour and extreme activity on the birds. It has been recorded in America also from the pigeon and is said by some to attack horses if such are in close proximity to lousy birds. The writer has never seen horses so attacked.

Menopon biseriatum Piaget.

This species is about .08 to .09 inches in length. The female has the body elongate and loosely jointed, the head short and the legs long. The abdomen tapers abruptly but slightly at the posterior end, and the posterior margin of the last segment bears a close series of fine hairs. The general body colour is yellowish brown. The male is shorter and stouter than the female and lacks the series of hairs on the posterior margin of the last segment. This species occurs commonly and often abundantly in company with *M. pallidum*. It can readily be distinguished from the latter by its larger size and less compact form. It has been recorded in America also from the turkey and pigeon, and is said to attack the pea fowl.

The Variable Chicken Louse (*Lipeurus variabilis* N.).

The length of this species is about .09 to .095 inches. The body of the female is elongate and slender. The head is broadly rounded in front and the antennæ are slender with the first joint short. The legs are long and the abdomen tapers weakly from the sixth segment. The colour is whitish, the margins of the body and front margins of the legs being pitchy black. The abdominal segments each bear a large squarish median brown patch. The male is more slender than the female and the first joint of the antenna is very large, and bears a peg-like appendage as does also the third segment.

This species is quite common and can usually be found on any heavily infested flock.

The Lesser Chicken Louse (*Goniocotes hologaster* N.).

The length of this species is about .035 to .06 inches. The body of the female is very broad. The head is squared behind, the legs short and the abdomen regularly rounded behind. The colour is light yellowish brown. The abdomen of the male is much shorter and broader and squared behind.

This species is not common in Canada, though I have specimens taken at Guelph at various times. It has been recorded in the United States and I have received specimens from Prof. Haseman taken at Columbia, Mo.

EXPLANATION OF PLATE VIII.

1. *Goniocotes hologaster* N. ♂.
2. *Goniocotes hologaster* N. ♀.
3. *Menopon biseriatum* Piaget.
4. Egg of a Bird Louse.
5. *Menopon pallidum* N.
6. *Lipeurus variabilis* N. ♀.
7. *Lipeurus variabilis* N. ♂.

A NEW HOPLANDROTHIRIPS (THYSANOPTERA) FROM BRITISH GUIANA.

BY J. DOUGLAS HOOD, U. S. BIOLOGICAL SURVEY.

The new species described below was received for determination from Mr. G. E. Bodkin, Government Economic Biologist of British Guiana.

Hoplandrothrips affinis, sp. nov.

Female (macropterous).—Length about 1.8 mm. Colour dark blackish brown with bright crimson hypodermal pigmentation; tarsi, fore tibiae, and bases of antennal segments 3-6 lemon yellow; distal ends of mid and hind tibiae and of tube paler; wings slightly